

**REMARKS**

***Summary of the Amendment***

Upon entry of the present Amendment, Claims 1 and 9-10 will have been amended, new Claims 17-20 will have been added, and Claims 8 and 14 will have been cancelled without prejudice. Accordingly, Claims 1-3, 5-6, 9-13 and 15-20 are currently pending.

***Summary of the Official Action***

In the subject Office Action, the Examiner has rejected the pending claims over the art of record. By the present Amendment and remarks, Applicant submits that the rejections have been overcome, and respectfully requests reconsideration of the outstanding Final Office Action and the allowance of the present application.

***Amendment is Proper for Entry***

Applicant submits that the present After Final Amendment is proper for entry. In general, the features of dependent Claims 8 and 14 have been incorporated into independent Claims 1 and 10, respectively (although it is noted that language incorporated into independent Claims 1 and 10 is not recited exactly as recited in dependent Claims 8 and 14). Also, new Claims 17-20 have been added. However, it is believed that no new issues are raised and no further searches are required. Moreover, it is believed the present amendments to Claims 1 and 10 and new Claims 17-20 will not present a burden on the Examiner with respect to consideration on the merits.

Therefore, Applicant submits that the present Amendment places the application into condition for allowance. Moreover, Applicant requests that the Examiner enter the Amendment, consider the merits of the same, and indicate that the present application and pending claims are allowable.

***Traversal of Rejection Under 35 U.S.C. § 102(b)***

Applicant traverses the rejection of Claims 1-3 and 8-9 under 35 U.S.C. § 102(b) as being anticipated by SHIN et al. (U.S. Patent 5,866,939) [hereinafter "SHIN"].

As amended, independent Claim 1 recites, *inter alia*, . . . and the at least one connecting bar portion extending from each of the pad portions of the outer set defining *an inner end having a bump land formed thereon, the inner ends of at least some of the connecting bar portions being positioned within an internal region defined by the inner set of pad portions; . . . a plurality of conductive bumps electrically connecting the input/output pads to respective ones of the bump lands; . . .*

Applicant respectfully submits that SHIN fails to disclose at least the above-noted features of the present invention.

A review of SHIN (Figures 10B, 11C, 19) indicates that bumps or solder joints 31 are used to electrically connect a bond pad formed below the semiconductor chip 20 with the lead ends 4 of leads 2 (e.g., refer to col. 15, lines 16-25). **It is further noted that the SHIN bumps 31 are positioned substantially near the outer perimeter of the chip 20.** SHIN provides no teaching or suggestion of any bumps electrically connecting the lead ends 4 of an inner set to input/output pads of the chip 20. Rather, the Applicant notes that SHIN actually teaches away from the concept of bump lands formed on both pads and inner ends of connecting bar portions positioned within an internal region defined by an inner set of pad portions, as is recited in independent Claim 1. In particular, SHIN teaches adhesive means 50 (e.g. epoxy) between the lower surface of the chip 20 and the lead ends 4. Thus, it is quite clear that SHIN does not meet the recited features in Claim 1, in particular, *an inner end defining a bump land formed thereon, the inner ends of at least some of the connecting bar portions being positioned within an internal region defined by the inner set of pad portions; . . . [and] a plurality of conductive bumps electrically connecting the input/output pads to respective ones of the bump lands; . . .*

Because SHIN lacks at least the above-noted features of the present invention, Applicant submits that SHIN fails to disclose each and every feature recited in amended Claim 1, and that the Examiner has failed to establish an adequate evidentiary basis to support a rejection of anticipation under 35 U.S.C. § 102(b). Therefore, Applicant submits that the Examiner's rejection of at least independent Claim 1 is improper and should be withdrawn.

Furthermore, Applicant submits that Claims 2-3 and 9 are allowable at least for the reason that these claims depend from allowable base Claim 1 and recite additional features that further define the present invention.

Accordingly, Applicant requests that the Examiner reconsider and withdraw the stated rejection under 35 U.S.C. § 102(b) and indicate that Claims 1-3 and 9 are allowable over the art of record.

***Traversal of Rejection Under 35 U.S.C. § 103(a)***

Applicant traverses the rejection of Claims 5-6, 10-13 and 15-16 under 35 U.S.C. § 103(a) as being unpatentable over SHIN in view of Baba et al. (U.S. Patent No. 5,969,426) [hereinafter "BABA"].

***Dependent Claims 5-6***

As discussed above, independent Claim 1 recites, *inter alia*, . . . and the at least one connecting bar portion extending from each of the pad portions of the outer set defining *an inner end having a bump land formed thereon, the inner ends of at least some of the connecting bar portions being positioned within an internal region defined by the inner set of pad portions; . . . a plurality of conductive bumps electrically connecting the input/output pads to respective ones of the bump lands; . . .*

Applicant respectfully submits that SHIN fails to disclose at least the above-noted features of the present invention.

And as noted above, SHIN fails to disclose or even suggest these particular features of Claim 1. It is further noted that the aforementioned features are not taught or suggested in BABA either. Therefore, since neither SHIN nor BABA discloses or suggests these aforementioned features of the invention, no proper combination of these documents can render unpatentable the asserted combination of features recited in at least independent Claim 1 as now amended.

Furthermore, Applicant submits that Claims 5 and 6 are allowable at least for the reason that they depend from allowable base Claim 1 and recite additional features that further define the present invention.

Accordingly, Applicant requests the Examiner reconsider and withdraw the rejection of Claims 5 and 6 under 35 U.S.C. § 103(a) as being unpatentable over SHIN in view of BABA, and indicate that these claims are allowable over the art of record.

*Claims 10-13 and 15-16*

As amended, independent Claim 10 recites, *inter alia*, . . . and the at least one connecting bar portion extending from each of the pad portions of the outer set defining *an inner end having a bump land formed thereon, the inner ends of at least some of the connecting bar portions being positioned within an internal region defined by the inner set of pad portions; . . . a plurality of conductive bumps electrically connecting the input/output pads to respective ones of the bump lands; . . .*

Applicant respectfully submits that SHIN and BABA, whether considered individually or in combination, fail to teach or suggest at least the above-noted features of the present invention.

As previously discussed, a review of SHIN (Figures 10B, 11C, 19) indicates that bumps or solder joints 31 are used to electrically connect a bond pad formed below the semiconductor chip 20 with the lead ends 4 of leads 2 (e.g., refer to col. 15, lines 16-25). *It is further noted that the SHIN bumps 31 are positioned substantially near the outer perimeter of the chip 20.* SHIN provides no teaching or suggestion of any bumps electrically connecting the lead ends 4 of an inner set to input/output pads of the chip 20. Rather, the Applicant notes that SHIN actually teaches away from the concept of bump lands formed on both pads and inner ends of connecting bar portions as is recited in independent Claim 10. In particular, SHIN teaches adhesive means 50 (e.g. epoxy) between the lower surface of the chip 20 and the lead ends 4. Thus, it is quite clear that SHIN does not meet the recited features in independent Claim 10, in particular, . . . *an inner end having a bump land formed thereon, the inner ends of at least some of the connecting bar portions being positioned within an internal region defined by the inner set of pad portions; . . . a plurality of conductive bumps electrically connecting the input/output pads to respective ones of the bump lands; . . .*

It is further noted that the aforementioned features are not taught or suggested in BABA either. Therefore, since neither SHIN nor BABA disclose or suggest these features of the invention, no proper combination of these documents can render unpatentable the asserted combination of features recited in at least independent Claim 10 as now amended.

Accordingly, Applicant requests the Examiner reconsider and withdraw the rejection of Claim 10 under 35 U.S.C. § 103(a) as being unpatentable over SHIN in view of BABA, and indicate this claim is allowable over the art of record.

Furthermore, Applicant submits that Claims 11-13 and 15-16 are allowable at least for the reason that they depend from allowable base Claim 10 and recite additional features that further define the present invention.

Accordingly, Applicant requests the Examiner reconsider and withdraw the rejection of Claims 10-13 and 15-16 under 35 U.S.C. § 103(a) as being unpatentable over SHIN in view of BABA, and indicate that these claims are allowable over the art of record.

***Newly Submitted Claims are Allowable***

Applicant submits that newly presented dependent Claims 17-20 are allowable at least for the reason that these claims depend from allowable base Claims 1 and 10 and because these claims recite additional features that further define the present invention.

In particular, Applicant submits that no proper combination of the art of record discloses or suggests, in combination, the plurality of input/output pads disposed on the first surface of the semiconductor chip are positioned directly above the bump lands formed on the pad portions of the inner set and the bump lands formed on the inner ends of the connecting bars positioned within the internal region, as recited in Claims 17 and 19; and wherein all of the inner ends of the connecting bar portions are positioned within the internal region, as recited in Claims 19 and 20.

**CONCLUSION**

Applicant respectfully submits that each and every pending claim of the present invention meets the requirements for patentability, and respectfully requests the Examiner to indicate the allowance of such claims.

In view of the foregoing, it is submitted that none of the references of record, either taken alone or in any proper combination thereof, anticipate or render obvious the Applicant's invention as recited in Claims 1-3, 5-6, 9-13 and 15-20. The applied references have been discussed and distinguished, while significant claimed features of the present invention have been pointed out.

Further, any amendments to the claims which have been made in this response and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Accordingly, reconsideration of the outstanding Final Office Action and allowance of the present application and all the claims therein is respectfully requested and now believed to be appropriate.

If any additional fee is required, please charge Deposit Account Number 19-4330.

Respectfully submitted,

Date: 3/11/04

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